

**Notice of Allowability**

Application No.

10/655,985

Examiner

Michael P. Nghiem

Applicant(s)

ZHU ET AL.

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2863

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment filed on 08 March 2007.
2. ☒ The allowed claim(s) is/are 13, 14, 16, 17, 19 and 20.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some\* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 5. <input type="checkbox"/> Notice of Informal Patent Application                     |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),<br>Paper No./Mail Date _____    | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment                   |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given by Mr. Michael Schaldenbrand during a telephone interview on March 16, 2007.

The application has been amended as follows:

Replace Claim 13 with the following:

-- 13. (Currently Amended) An apparatus for detecting an open secondary winding based on an ionization signal [[detection apparatus]], comprising:

a first comparator having a first and a second input and an output, wherein said first input is operably connected to [[an]] the ionization signal and said second input is operably connected to a first threshold;

a controller having a first and an enable input and an output, wherein said first input is operably connected to said output of said first comparator;

a timer having a first and an enable input, and an output, wherein said first input is operably connected to said output of said controller; and

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a second comparator having a first and a second input and an output, wherein said first input is operably connected to said output of said timer and said second input is operably connected to a second threshold. --

Replace Claim 17 with the following:

-- 17. (Currently Amended) An apparatus for detecting an open secondary winding based on an ionization signal [[detection apparatus]], comprising:

an integrator having [[an]] the ionization signal input, an enable input, a reset input and an output, said reset input being capable of resetting said integrator,

a comparator having a first input operably connected to said output of said integrator, a second input operably connected to a threshold value, and an output, and

a powertrain control module having an input operably connected to said output of said comparator and an output operably connected to said enable input of said integrator, wherein said reset input of said integrator is operably connected to an ignition charge pulse. --

### ***Reasons For Allowance***

The combination or method as claimed wherein an open secondary winding detection apparatus comprising an arrangement of a controller and a timer between two comparators (claim 13) or a powertrain control module having an input operably connected to said output of said comparator and an output operably connected to said

enable input of said integrator (claim 17) is not disclosed, suggested, or made obvious by the prior art of record.

Daniels et al. (US 2004/0085070) discloses an energy integration apparatus (Fig. 24) comprising an ionization signal inputting into an integrator (245) having an output for inputting to a comparator (260). However, Daniels et al. does not disclose that the integrator is between two comparators.

Daniels et al. further disclose an edge based timer with sample and hold circuit (Fig. 29) comprising an ionization signal (100) inputting into an edge detector (415) having an output for inputting to a timer (425). However, a comparator is not disclosed.

Daniels et al. further discloses a compare and integrate circuit (Fig. 31) comprising integrators (445, 450) and a comparator (440) and an S/H circuit (462) having an output. However, the output of the circuit (462) is not connected to an enable input of the integrators (445, 450).

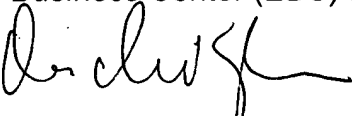
#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P Nghiem whose telephone number is (571) 272-2277. The examiner can normally be reached on M-H.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**MICHAEL NGHIEM**  
**PRIMARY EXAMINER**

Michael Nghiem

March 16, 2007